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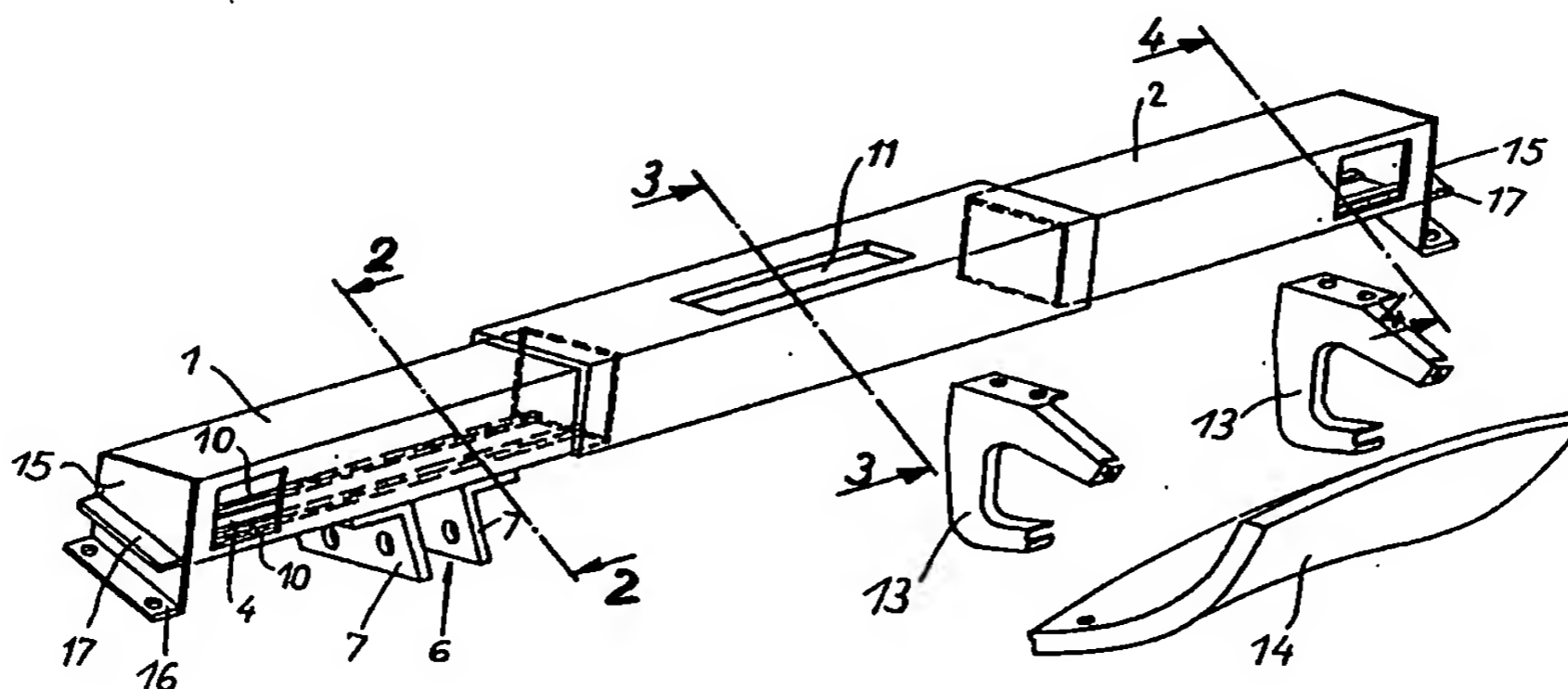
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<p>(21) International Application Number: PCT/EP93/02650 (22) International Filing Date: 29 September 1993 (29.09.93) (30) Priority data: P 42 32 846.2 30 September 1992 (30.09.92) DE (71) Applicant (for all designated States except US): AUDI AG [DE/DE]; D-85045 Ingolstadt (DE). (72) Inventors; and (75) Inventors/Applicants (for US only) : PASCH, Erich [DE/DE]; Stäffelesbrunnenweg 4, D-74172 Neckarsulm-Obereisesheim (DE). ZUSCHANKO, Hans [DE/DE]; Goethestrasse 51, D-74172 Neckarsulm (DE). VORTANZ, Carsten [DE/DE]; Bergstrasse 22, D-74861 Neudenau (DE).</p>		<p>(74) Agents: LE VRANG, Klaus et al.; Audi AG, Abteilung I/EXA, D-85045 Ingolstadt (DE). (81) Designated States: JP, US, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</p>

(54) Title: CROSSMEMBER FOR THE DASHBOARD OF A MOTOR VEHICLE



(57) Abstract

A crossmember for the dashboard of a motor vehicle comprises three light-alloy extruded parts, namely two side parts (1, 2) with a closed box profile and a central part (3) welded to the said side parts, the lower wall (4) of the driver-side side part (1) having ribs (10) which extend in the longitudinal direction over the entire length of the side part and have threaded holes for the fastening bolts of the steering-column mount (6).

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CROSSMEMBER FOR THE DASHBOARD OF A MOTOR VEHICLE

The invention relates to a crossmember for the dashboard of a motor vehicle in accordance with the precharacterizing clause of Claim 1.

5 Crossmembers of this kind, known, for example, from EP 0 141 959, usually consist of sheet metal. It is also known practice to design the crossmember as a one-piece light-alloy die-cast element in order to reduce the weight. However, the production of a
10 crossmember of this kind involves high costs for the die.

It is the object of the invention to provide a crossmember of the generic type which is distinguished, in particular, by lower production costs and, above
15 all, by lower investment for dies.

This object is achieved according to the invention by the features given in the characterizing clause of Claim 1.

Since the parts which form the crossmember
20 comprise light-alloy extruded sections which are merely cut off to the required length and then welded together, the outlay for the production of the crossmember and, in particular, the costs for the die are considerably lower than in the case of a
25 crossmember comprising a die-cast part. However, it has the same advantages in terms of weight as a crossmember consisting of sheet metal.

To ensure secure fixing of the steering-column mount, the lower wall of the driver's-side side part
30 has a greater wall thickness in the area of the fixing points, i.e. at the points at which the threaded holes for the fastening bolts of the steering-column mount are to be provided. For reasons of cost and weight, it is, at the same time, expedient not to embody the
35 entire lower wall with a larger wall thickness but to provide ribs extending in the longitudinal direction over the entire length of this side part, in which ribs the threaded holes for the fastening bolts are provided. This also ensures that, without modifying the
40 external dimensions, the cross-section of the interior

space of the side part is only slightly reduced by the thickenings, this being advantageous if this interior space is to be used to guide heating air.

5 The crossmember according to the invention should preferably be connected to the body only at its ends. Vertical end plates having horizontal bent portions for connection to brackets attached to the A pillars of the body can here be welded to the outer ends of the side parts. The end plates can also be
10 embodied as extruded profiles.

On its lower wall, the passenger-side side part can have means for the fixing of a knee pad, a glove box and/or an air bag.

15 If, as is customary, the motor vehicle is provided with a heating or air-conditioning system, it is advantageous to design the central part of the crossmember with an approximately L-shaped cross-section, resulting in the formation of a space open towards the bottom and towards the front, i.e. towards
20 the engine compartment, between the inner ends of the side parts, into which space the heating or air-conditioning unit projects.

An illustrative embodiment of the invention is described below with reference to the drawings, in
25 which:

Fig. 1 shows a perspective view of a crossmember according to the invention,
Fig. 2 shows a section along the line 2-2 in Fig. 1,
Fig. 3 shows a section along the line 3-3 in Fig. 1
30 and
Fig. 4 shows a section along the line 4-4 in Fig. 1.

The crossmember depicted in Fig. 1 comprises three light-alloy extruded parts, namely a driver's-side side part 1 with a closed box profile, a
35 passenger-side side part 2 with a closed box profile and a central part 3 with an approximately L-shaped cross-section. The central part 3 overlaps the inner ends of the side parts 1 and 2 and is welded to them. The inner ends of the side parts 1, 2 lie at a distance

apart and, as a result of the L-shaped cross-section of the central part 3, an interspace which is open towards the bottom and towards the front, i.e. towards the left in Fig. 1, is thereby formed, this interspace being
5 used to accommodate a heating or air-conditioning unit. A mount 6 for the steering column is bolted to the lower wall 4 of the passenger-side side part 2 by means of bolts 5. In the illustrative embodiment, this mount comprises two angles 7, between which the steering
10 column is arranged and which have holes 8 for fixing the steering column. The steering-column mount does not form the subject-matter of the invention and can also take some other form. To ensure secure fixing of the steering-column mount 6, the lower wall 4 of the
15 driver's-side side part 1 is embodied with a greater wall thickness in the area of the threaded holes 9 for the fastening bolts 5 than in the remaining area. This increase in thickness is formed by ribs 10 which extend in the longitudinal direction over the entire length of
20 the side part 1. The remaining walls of the driver's-side side part 1 and the walls of the passenger-side side part 2 have a considerably smaller wall thickness, thereby saving on weight and costs. The wall thickness of the central part 3 is, in contrast, relatively large
25 since it does not have a closed profile and is moreover provided with a cut-out 11, which serves to guide the air from the heating or air-conditioning unit to the defroster vents in the dashboard mounted on the crossmember.

30 Threaded holes (not visible in the drawing) for the fixing of holders 13 for a knee pad 14 are provided in the longitudinal ribs 10 in the lower wall 12 of the passenger-side side part 2. In addition, a glove compartment or, alternatively, an air bag can be
35 attached to this wall 12. The driver's-side side part 1, too, can be provided in its lower wall 4 or ribs 10 with threaded holes for the fixing of a knee pad for the driver.

The crossmember is fixed only to the A pillars of the vehicle body. For this purpose, the vertical end plates 15 are welded to the outer ends of the side parts 1, 2, the said end plates having horizontal
5 flanges 16 for connection to brackets, attached to the A pillars, and ribs 17 which, upon installation of the crossmember, rest on the brackets, while the flanges lie below the brackets and are bolted to the brackets from below.

Patent claims

1. Crossmember for the dashboard of a motor vehicle, which crossmember extends across the width of the interior of the motor vehicle and bolted to the underside of which is a mount (6) for the steering column, characterized in that the crossmember comprises three light-alloy extruded parts, namely two side parts (1, 2) with a closed box profile and a central part 3 welded to the said side parts, and in that the lower wall (4) of the driver's-side side part (1) has a greater wall thickness in the area of the fixing points (9) for the steering-column mount (6) than the remaining walls of this side part (1) and than the walls of the passenger-side side part (2).
2. Crossmember according to Claim 1, characterized in that the lower wall (4) of the driver's-side side part (1) has ribs (10) which extend in the longitudinal direction over the entire length of the side part and have threaded holes (9) for the fastening bolts (5) of the steering-column mount (6).
3. Crossmember according to Claim 1 or 2, characterized in that vertical end plates (15) are welded to the outer ends of the side parts (1, 2), the said end plates having horizontal flanges (16) for connection to brackets attached to the A pillars of the vehicle body.
4. Crossmember according to Claim 3, characterized in that ribs (17) parallel to the flanges (16) are provided above the latter.
5. Crossmember according to one of Claims 1 to 4, characterized in that, on its lower wall (12), the passenger-side side part (2) has means for the fixing of a knee pad (14), a glove box and/or an air bag.
6. Crossmember according to one of Claims 1 to 5, characterized in that the central part (1) has an approximately L-shaped cross-section and covers the interspace between the mutually facing ends of the side parts (1, 2) at the top and in the direction of the interior of the vehicle.

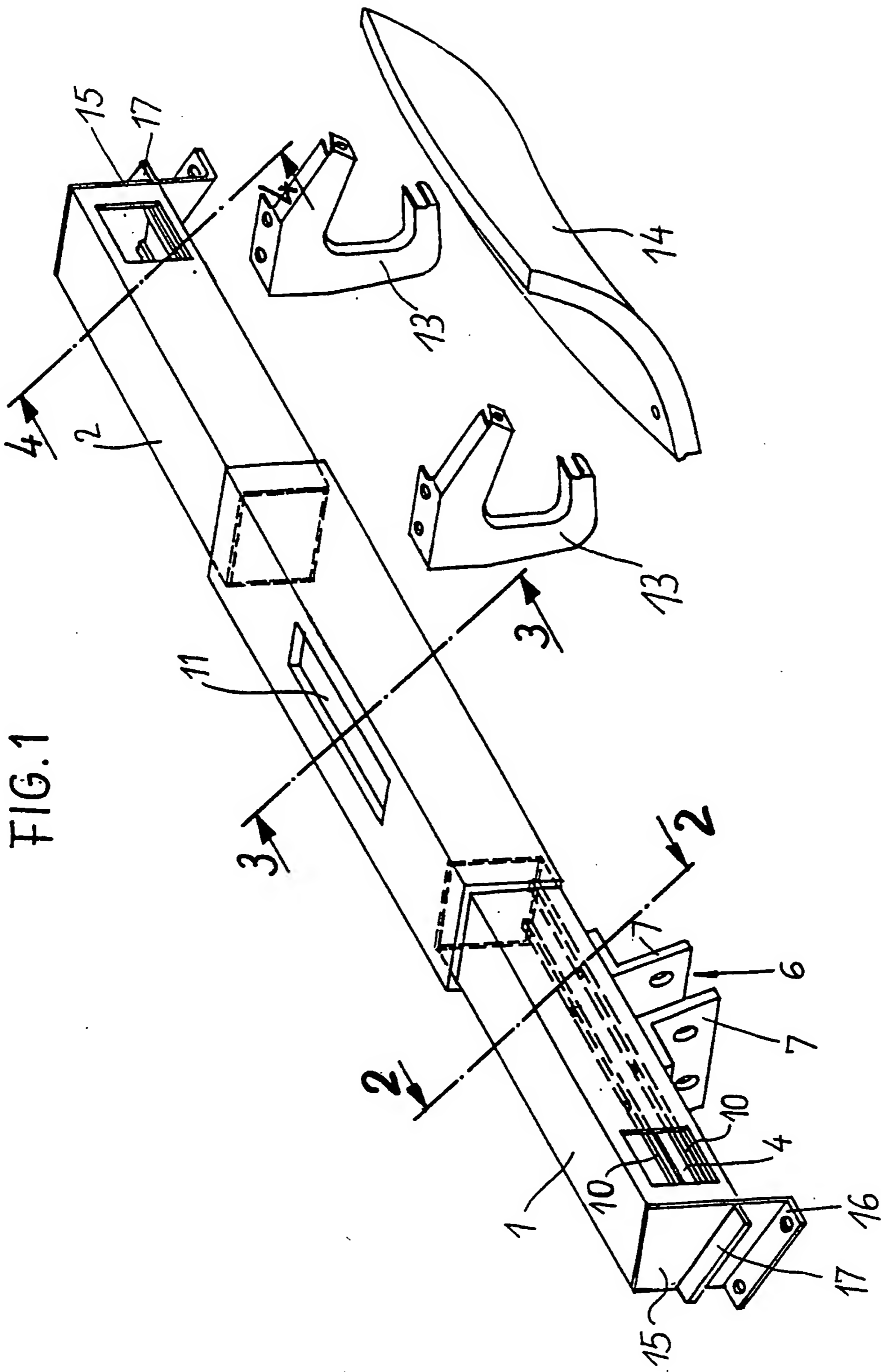


FIG.2

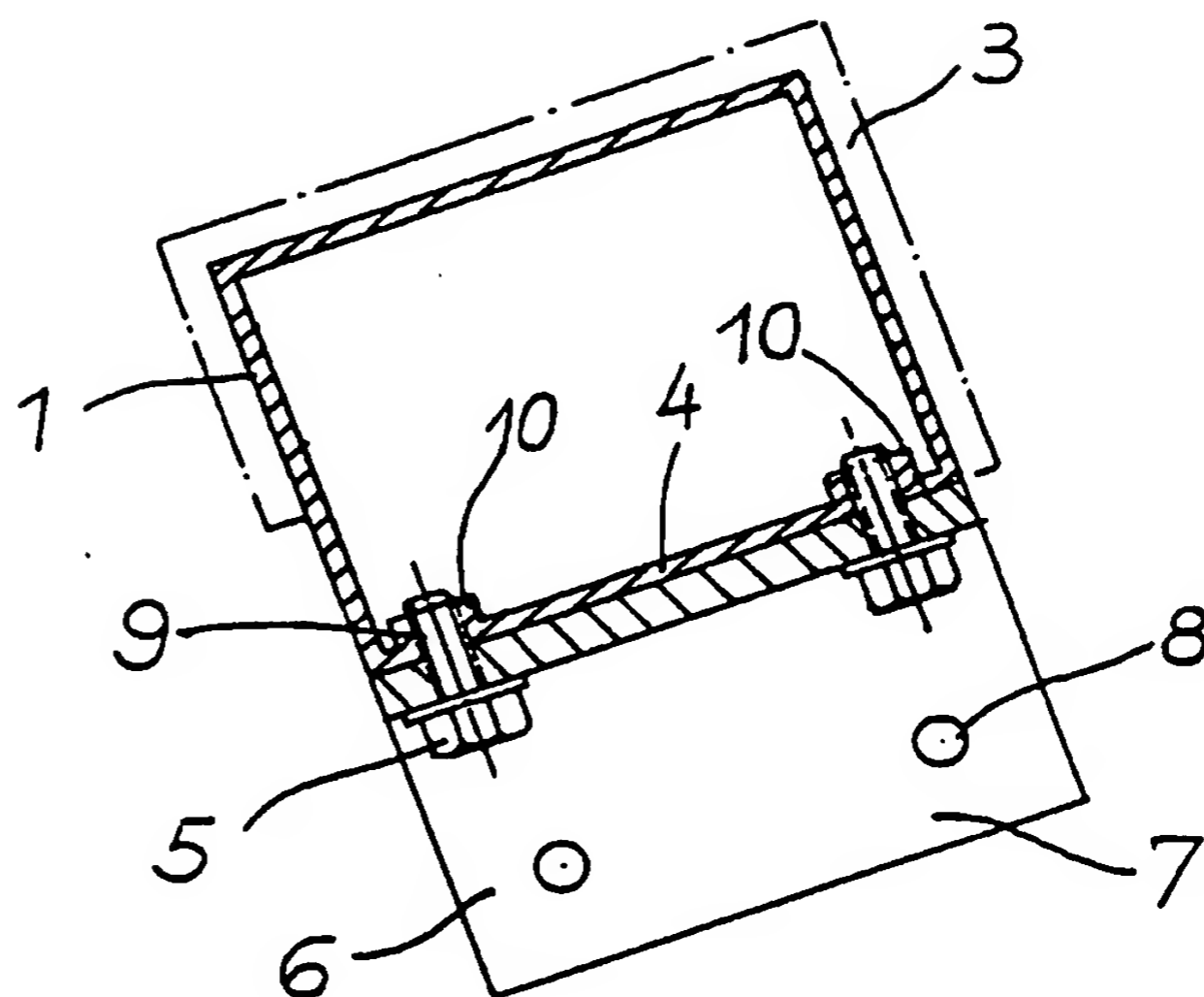


FIG.3

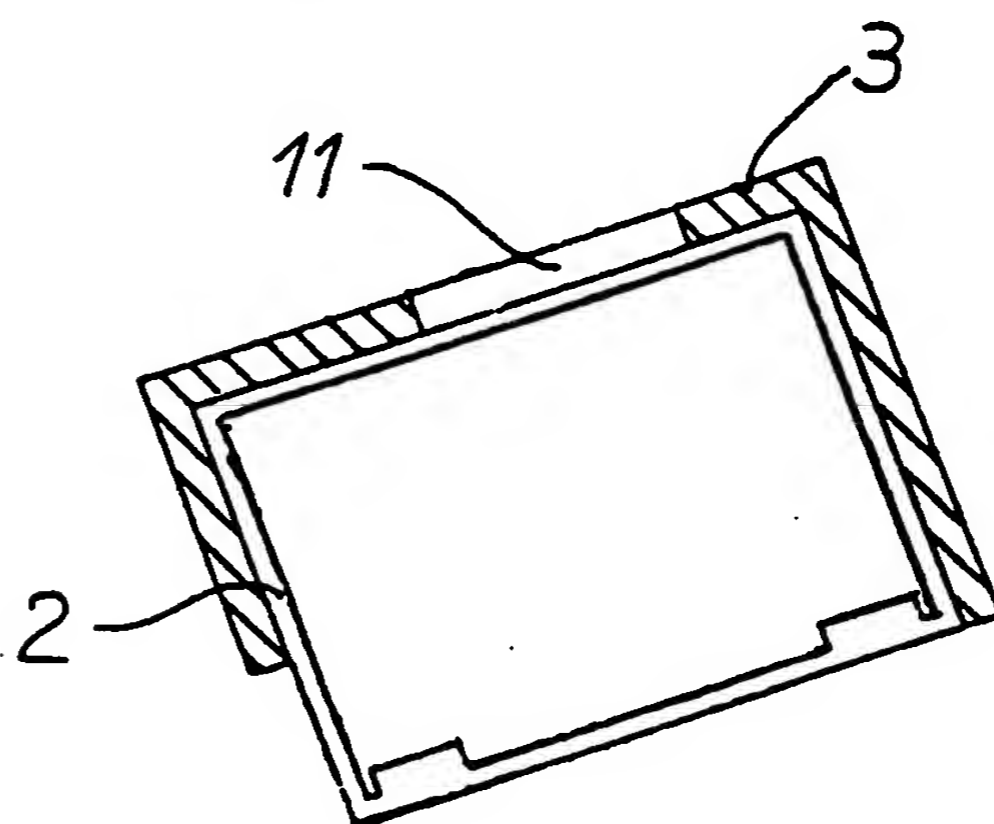
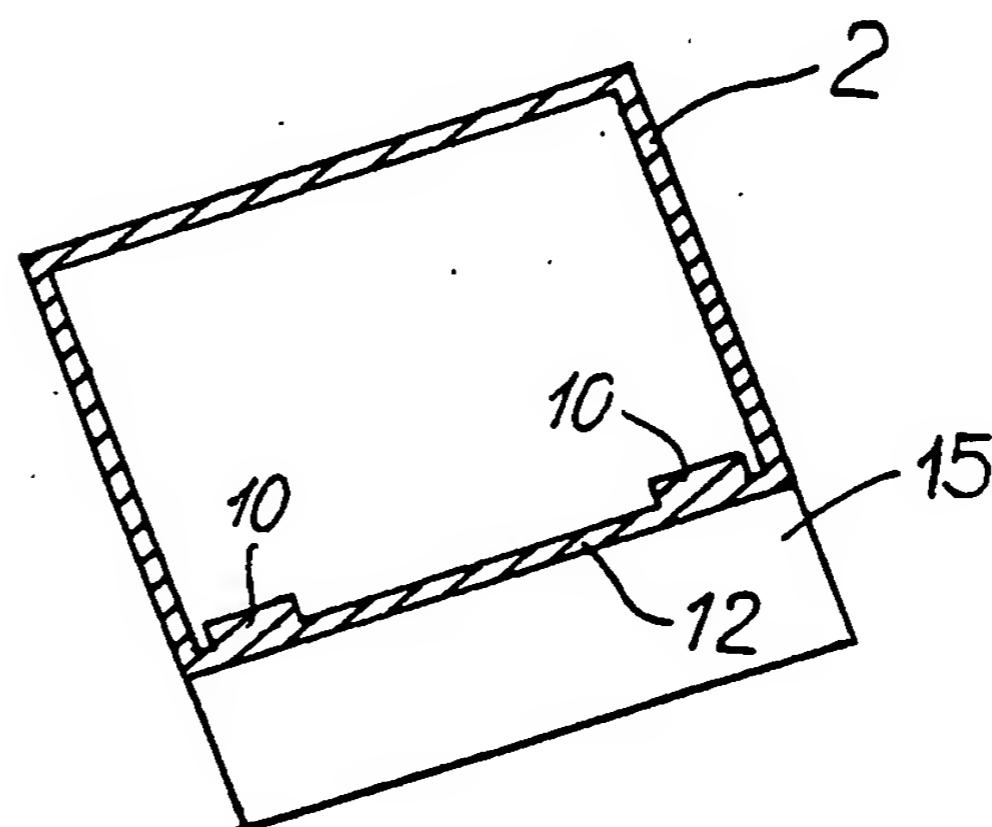


FIG.4



INTERNATIONAL SEARCH REPORT

International Application No
PC1/EP 93/02650

A. CLASSIFICATION OF SUBJECT MATTER
IPC 5 B62D25/14 B60R21/045 B62D29/00

According to International Patent Classification (IPC) or to both national classification and IPC

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Minimum documentation searched (classification system followed by classification symbols)

IPC 5 B62D B60R B60H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	FR,A,2 669 885 (AUTOMOBILES PEUGEOT ET AL.) 5 June 1992 see page 2, line 12 - page 8, line 5; figures ---	1,3
A	US,A,4 365 826 (T. IRIYAMA) 28 December 1982 see column 2, line 45 - column 4, line 40; figures ---	1
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Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

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Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US,A,4 723 792 (T. SAKAMOTO ET AL.) 9 February 1988 see column 2, line 20 - column 4, line 27; figures ---	1,3,5,6
A	US,A,4 432 565 (I. SUZUKI ET AL.) 21 February 1984 see column 3, line 4 - column 5, line 21; figures -----	1,2

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Information on patent family members

Int ional Application No

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
FR-A-2669885	05-06-92	NONE	
US-A-4365826	28-12-82	NONE	
DE-A-4016670	06-12-90	CH-A- 679763 US-A- 5156416	15-04-92 20-10-92
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